

27-37. (Canceled)

38. (Currently Amended) A locomotive, comprising:

5 a plurality of ~~direct current~~ traction motors corresponding to a plurality of axles and  
a plurality of drive switches; and

a plurality of free-wheeling bypass circuits, each bypass circuit bypassing a  
corresponding one of the plurality of plurality of drive switches, wherein each of the plurality  
of drive switches is operable to pulse power sequentially to each of the traction motors to  
produce a selected power requirement for each traction motor during a selected time interval,  
10 wherein the pulse width is varied depending on a measured characteristic of the respective  
traction motor, wherein each of the plurality of drive switches is operable to pulse power  
sequentially to each of the traction motors to produce a selected power requirement for each  
traction motor during a selected time interval, wherein the pulse width is varied depending  
on a measured characteristic of the respective traction motor, wherein the pulses to each of  
15 the traction motors are time sequenced such that a time separation between adjacent pulses  
to different traction motors is at least substantially maximized, and wherein the measured  
characteristic is an electrical current supplied to each traction motor.

39. (Previously Presented) The locomotive of claim 38, further comprising:

5 a controller operable to (a) determine the power requirement for each motor at each  
of a number of successive time intervals; (b) determine the necessary voltage and pulse width  
to achieve the desired power for each motor; and (c) sequentially pulse power to each of the  
motors for a duration necessary to achieve the power requirement at each successive time  
interval, wherein, during a selected time interval, a first traction motor receives a first power  
pulse and a second different traction receives a second power pulse and wherein the first and  
second power pulses have differing magnitudes. ←